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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,075	11/17/2003	Maris Graube	WOG 7094.0014	4780

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EXAMINER

HUNNINGS, TRAVIS R

ART UNIT	PAPER NUMBER
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2632

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/716,075

Applicant(s)

GRAUBE, MARIS

Examiner

Travis R Hunnings

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: elements LED30, R30, R50, Q30 and Q40 in figure 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2 and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller.

Regarding claim 1, Hiller discloses *Fault Detection Circuit And Method For Testing A Multiple Conductor Cable Having A Shield* that has the following claimed limitations:

The claimed fieldbus network comprising a positive lead, a negative lead and a shield conductor connected to ground is met by the cable having three leads for a 220 volt AC three phase system with 110 volts phase-to-ground and 220 volts phase-to-phase and therefore has a positive and negative lead to obtain the 220 volts phase-to-phase signal and a shielding for the cable (col1 17-26, col2 43-60, col3 6-16, 50-68, col4 1-20, 61-62, col5 63-68 and col7 1-4);

The claimed short circuit detector comprising a first high impedance semiconductor circuit coupled between said positive lead and said shield conductor and having a first output is met by the circuits (a, b and c) in figure 1 that have a high resistance variable resistor, a relay, an indicator light and a connection to the shield of the cable (col1 17-26, col2 43-60, col3 6-16, 50-68, col4 1-20, 61-62, col5 63-68 and col7 1-4). The term "semiconductor circuit" is interpreted to mean a circuit that conducts at some times and does not conduct at others. The relay of Hiller allows for selective conduction through the circuit but it is not a semiconductor device. The examiner takes official notice that it is well known in the art to use semiconductor relays for selective

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switching circuits such as the circuit of Hiller. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Hiller to include a semiconductor circuit;

The claimed short circuit detector comprising a second high impedance semiconductor circuit coupled between said negative lead and said shield conductor and having a second output is met by the circuits (a, b and c) in figure 1 that have a high resistance variable resistor, a relay, an indicator light and a connection to the shield of the cable (col1 17-26, col2 43-60, col3 6-16, 50-68, col4 1-20, 61-62, col5 63-68 and col7 1-4). The term "semiconductor circuit" is interpreted to mean a circuit that conducts at some times and does not conduct at others;

The claimed short circuit detector comprising an alarm circuit coupled to said first and second outputs for activating an alarm whenever a short circuit exists between either of said positive or negative leads and said shield conductor is met by the relays being activated in the case of a short circuit or fault and in turn the indicator lights that are activated when the relays are activated (col1 17-26, col2 43-60, col3 6-16, 50-68, col4 1-20, 61-62, col5 63-68 and col7 1-4).

Regarding claim 2, Hiller discloses all of the claimed limitations. The claimed short circuit detector wherein said alarm circuit includes a ground connection which is isolated from the shield conductor would have been obvious to one of ordinary skill in the art in order to protect the indicator lights from potential spikes and fluctuations in the AC power supply when a fault or short circuit is being detected.

Regarding claim 4, Hiller discloses all of the claimed limitations. The claimed short circuit detector for a fieldbus network comprising a positive lead, a negative lead and a shield conductor connected to ground is met by the cable having three leads for a 220 volt AC three phase system with 110 volts phase-to-ground and 220 volts phase-to-phase and therefore has a positive and negative lead to obtain the 220 volts phase-to-phase signal and a shielding for the cable (col1 17-26, col2 43-60, col3 6-16, 50-68, col4 1-20, 61-62, col5 63-68 and col7 1-4). The claimed short circuit detector comprising a first high impedance alarm circuit coupled between said positive lead and said shield conductor is met by the circuits (a, b and c) in figure 1 that have a high resistance variable resistor, a relay, an indicator light and a connection to the shield of the cable (col1 17-26, col2 43-60, col3 6-16, 50-68, col4 1-20, 61-62, col5 63-68 and col7 1-4). The claimed short circuit detector comprising a second high impedance alarm circuit coupled between said negative lead and said shield conductor is met by the circuits (a, b and c) in figure 1 that have a high resistance variable resistor, a relay, an indicator light and a connection to the shield of the cable (col1 17-26, col2 43-60, col3 6-16, 50-68, col4 1-20, 61-62, col5 63-68 and col7 1-4).

Regarding claim 5, Hiller discloses all of the claimed limitations. The claimed short circuit detector wherein said first and second high impedance alarm circuits each comprise a constant current diode connected in series with an alarm indicator device is met by the indicating light being connected in series with the relay in order to operate

the indicating light (figure 1). The examiner takes official notice that it is well known in the art to use Light Emitting Diodes (LED) to operate indicator lights in devices that alert users to a particular condition occurring. The LED would be by definition a constant current diode.

Regarding claim 6, Hiller discloses all of the claimed limitations. The claimed short circuit detector wherein said alarm indicator device is a light emitting diode is met by the indicator light (figure 1). The examiner takes official notice that it is well known in the art to use Light Emitting Diodes (LED) to operate indicator lights in devices that alert users to a particular condition occurring.

Regarding claim 7, Hiller discloses all of the claimed limitations. The claimed short circuit detector wherein each of the first and second high impedance semiconductor circuits have a visual indicator device for identifying whether a short circuit has occurred in either the positive or the negative lead is met by the indicator light that is activated when there is a fault or short in the leads of the cable (col1 17-26, col2 43-60, col3 6-16, 50-68, col4 1-20, 61-62, col5 63-68 and col7 1-4).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller in view of Poschman (German Patent DE 3432567 C).

Regarding claim 3, Hiller discloses all of the claimed limitations except for the claimed short circuit detector wherein the alarm circuit includes an opto-isolator device. Poschman discloses *Short-Circuiting Monitoring Circuit Uses Opto-coupler Unit With LED To Annunciate Short-Circuit Condition* that teaches using an opto-coupler (opto-isolator) in conjunction with an indicator (LED) to alert users to a short circuit condition (figure 2). Using an opto-coupler with the device of Hiller would allow the LED to be kept separate of the high-voltage of the AC power supply and allow it to operate on a DC level. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Hiller according to the teachings of Poschman to include an opto-isolator device.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller in view of Tamate et al. (Tamate; Japanese Patent JP 09288138 A).

Regarding claim 8, Hiller discloses all of the claimed limitations except for the claimed short circuit detector wherein each of the first and second high impedance semiconductor circuits include a zener diode for blocking current except in a short circuit condition. Tamate discloses *Short-Circuit Detector Circuit Has Resistor And Route Equipped With Zener Diode And Light Emitting Diode Which Are Connected In Parallel Manner* that teaches using a Zener diode to control the current flowing to a LED to indicate when a short circuit has occurred (figure 1). Adding a Zener diode to the device of Hiller would allow the short circuit paths to allow only a small amount of



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current to flow through to the indicator light circuit when a short circuit condition occurs in order to protect the indicator light. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Hiller according to the teachings of Tamate to modify the circuit wherein each of the first and second high impedance semiconductor circuits include a zener diode for blocking current except in a short circuit condition.

6. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller in view of Tamate and further in view of Poschman.

Regarding claim 9, the claim is interpreted and rejected as claim 3 stated above.

Regarding claim 10, Hiller, Tamate and Poschman disclose all of the claimed limitations. The claimed short circuit detector wherein each opto-isolator device is coupled to an alarm circuit is met by the opto-couplers being coupled to LEDs in order to alert the user to a short circuit condition (Poschman figure 2).

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Coleman et al. USP 3,736,503

Hodge, USP 4,227,146

Liotta, USP 5,285,163

Hayhurst, USP 5,477,152

Koyama, USP 5,631,795

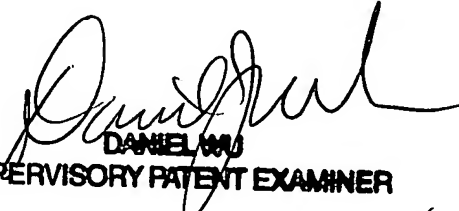
Collier et al. USP 6,323,652

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis R Hunnings whose telephone number is (571) 272-3118. The examiner can normally be reached on 8:00 am - 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J Wu can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRH

  
DANIEL WU  
SUPERVISORY PATENT EXAMINER  
4/04/05